cut off in such manner as to leave a good margin between the cut surface and the pulp.

When we have at length learned to recognize ripeness in the banana and have ceased to eat the unripe fruit because we mistake its yellow tinge as the sign of a wholesome stage, we may further come to appreciate a positive advantage in the "sterile package" represented by the undamaged peel. Bailey's investigations have shown this to be practically impervious to bacteria. Therefore — and this is worthy of distinct emphasis — a banana properly handled is "uncontaminated by dirt and pathogenic germs even if purchased from the push cart in our congested streets." How many other foods that are edible without cooking can make an equally meritorious claim?

MILK PRODUCTION AND DISTRIBUTION

We have several times referred to the growing importance of the economic aspects of milk production and distribution. The cost of milk to the consumer is so intimately bound up with public health interests that it has long been impossible to separate sharply economic and sanitary issues. Under the pressure of war conditions, this relation is becoming closer than ever.

New York investigators have found that in October of this year a definite decrease in milk consumption in that city could be noted. In 2,200 families visited, the daily amount of milk produced had fallen to 3,193 quarts, as compared with 4,797 quarts in the previous year. Coincident with the decrease in amount of milk purchased, there was a shifting from the better grades of milk to the cheaper, 266 families abandoning Grade A milk for Grade B, and sixty-seven changing from Grade B to Grade C. Dipped milk also was substituted for bottled milk, and the sale of condensed milk increased. The investigators found that 2,148 children under 6 years of age were drinking tea and coffee. In view of these facts, it is not surprising that the New York City Health Department believes that the recent increase in infant mortality in that city is due to a decreased use of high grade milk.

It is, indeed, high time that we should have the cost investigations that are now being made or projected in various parts of the country. If competent investigators are armed with ample authority to secure the facts, some interesting results may be anticipated. Certain opportunities for inquiry and reform have been evident for a long time. The waste involved in current distributing methods appeals to the most superficial observer as quite without justification. In the well known Rochester, N. Y., investigation, it was found that in one small section of the city, fifty-seven dealers delivered milk to 363 homes, traveling altogether some 30 miles. The same service could have been given by one distributer traveling 2 miles. Plans for cooperative dealing have been worked out; why are they not put into effect? Committees meet, discuss and decide, but no action is taken. Selfish interests—always a little more persistently aggressive than unselfish—contribute powerfully to a policy of inaction. Some observers express much curiosity as to the profits of the large milk distributing companies, not merely at the present time but during the last ten years. Has the public been getting a square deal?

Then there is the dairy farmer, himself, that potent political factor in all agricultural states. What state official is going to "antagonize" the rural vote? In many state legislatures the country members outnumber those from the city districts. State institutions are dependent on the legislature for their appropriations. Is it a fact that the actual cost of milk production warrants the enormous price increase that has taken place all over the country in the past few months? Crops of the chief cattle foods are said to have been very large in most sections. The cost of producing and storing these foods may have increased, but not greatly for the average farmer, tilling his own soil and milking his own cows. Does the increased price demanded by the farmer for his milk represent a genuine rise in cost production, or is the traffic being charged all it will bear? One responsible health officer over his own signature answers this question in no uncertain way.[1]

It is to be hoped that the investigations now under way will be real investigations, and that the questions here raised will be answered authoritatively. This is no time for hoodwinking ourselves or others, or for being tender with the feelings of selfishly interested groups, or for resting content with half way information or half way measures.

LOW ARTERIAL BLOOD PRESSURE

The emergency of the war, with its countless experiences of surgical shock, has directed attention to the problems of low blood pressure more emphatically than has ever been done before. Recent timely experimental contributions to this subject in THE JOURNAL by Pike and Coombs,[2] Henderson and Haggard,[3] and Guthrie[4] bear witness to the importance and the intricacy of this much debated topic. It would be both futile and presumptuous to attempt in a brief editorial comment to unravel the difficulties presented. It may be worth while, however, to note for the reader less well versed in the phenomena encountered in connection with shock, that low arterial pressure, per se, may be due to at least two quite different causes, apart from failure of the heart itself. An

1. Wright, F. W.: Month. Bull., Dept. of Health, New Haven, Conn., November, 1917.
2. Pike, F. H., and Coombs, Helen C.: The Relation of Low Blood Pressure to a Fatal Termination in Traumatic Shock, THE JOURNAL A. M. A., June 23, 1917, p. 1892.
3. Henderson, Yandell, and Haggard, H. W.: Observations on Surgical Shock, THE JOURNAL A. M. A., Sept. 22, 1917, p. 965.
4. Guthrie, C. C.: Experimental Shock, THE JOURNAL A. M. A., Oct. 27, 1917, p. 1394.

actual deficiency of blood in the circulation, such as occurs after marked hemorrhage, reduces the output of the heart so that it may become insufficient to take the place of the blood flowing through the capillaries. The obvious form of relief for this condition is to replace effectively the fluid lost. Constriction of the arterioles may raise the blood pressure; but as Bayliss[5] has clearly pointed out in a review of the subject, while it is evident that constriction of the arterioles would raise the pressure in such cases, by diminishing the rate of outflow through the capillaries, the result would be to decrease the supply of blood to all organs whose arterioles are affected, so that no real gain would be obtained. There is an abundance of evidence now at hand to show that when arterial pressure is lowered through loss of blood it cannot be brought back except to a certain degree by the injection of simple saline solutions in a volume equal to that of the fluid lost. The fluid thus introduced rapidly leaves the blood vessels, in small part perhaps through prompt elimination by the kidneys, but in far larger measure by passage into the tissues, as has been pointed out by Bogert, Underhill and Mendel.[6] Several investigators have maintained, and in this they are supported by Bayliss, that if the viscosity of the solutions injected to replace lost blood is raised to that of blood, as can be done by using gum or gelatin solutions in saline, the restoration of blood pressure and volume is far less transitory than is the case with saline solutions alone. The difference in this case, says Bayliss, is due to the osmotic pressure of the colloids injected, by which loss of water by the kidneys and to the tissues is prevented. In animals this has been accomplished by the addition of gelatin or gum acacia to Ringer's solution. Colloids that exert no osmotic pressure are ineffective. Perhaps the intravenous injections of glucose as performed by Erlanger and Woodyatt[7] will prove more satisfactory.

But there is another condition of low blood pressure in which the volume of blood is entirely normal, even when the heart is beating efficiently. The result is due in such cases to peripheral vasodilatation. Bayliss has well analyzed this situation by saying that what is here required is clearly to restore the normal tonic contraction of the vessels. In these circumstances an increased volume of blood may be useless or even harmful, if the heart cannot correspondingly increase its output. Even when no sign of heart failure can be detected, however, injections of suitably viscous saline solutions do not produce any permanent rise in arterial pressure in this category of cases. The vasomotor mechanism is not exhausted under these circumstances, so that the employment of suitable substances to act on it may bring success in restoring the pressure. It is a striking fact that a fall of arterial pressure by itself produces peripheral vasoconstriction through nervous channels; and a rise in pressure appears to induce vasodilatation.

These distinctions, already familiar to the intensive student of the circulation, need to be impressed on all who tend to put every instance of low arterial blood pressure into a common category and assign it to a uniform cause. In shock one has to deal with even more complex conditions in which the condition of the venous circulation, the nutrition of the nervous centers, an altered chemical composition of the circulating medium, and perhaps other as yet entirely unanticipated factors referable to the tissues themselves may play the decisive rôle.

5. Bayliss, W. M.: Methods of Raising Low Blood Pressure, Proc. Roy. Soc., B, 1916, **89**, 380.
6. Bogert, Lotta J.; Underhill, F. P., and Mendel, L. B.: Am. Jour. Physiol., 1916, **41**, 189, 219.
7. Erlanger, Joseph, and Woodyatt, R. T.: Intravenous Glucose Injections in Shock, THE JOURNAL A. M. A., Oct. 27, 1917, p. 1410.

Current Comment

CHOLESTEROL ESTIMATIONS IN BLOOD

The rapid development that the clinical chemical examination of the blood has experienced as a diagnostic technic in the past few years has led to the exploitation, so to speak, of various blood constituents as indexes of functional derangement. In some cases these attempts have been successful in offering new or better indications of pathologic conditions that cannot be so well diagnosticated by other means now available. These contributions, notably such as relate to the nonprotein nitrogen, the uric acid, the sugar and the lipoid content of the blood, have repeatedly been referred to in THE JOURNAL. With an extension of the use of microchemical methods in clinical laboratories, and the accumulation of first hand experience regarding what they can reveal in the clinic, a better critique of chemical blood analysis will gradually be evolved, and the demonstrably useful features will be retained as a part of the laboratory routine. This entire phase of clinical observation is passing through much the same stages as were traversed in the development and perfecting of the now highly successful and invaluable methods for the morphologic examination of the blood. With this preface we may refer again to the subject of the cholesterol content of the blood, summarizing the best evidence available up to the present time. The hopes of the past have not all been realized. It seemed likely at one time that hypercholesterolemia would prove to accompany cholelithiasis. Indeed, the formation of gallstones has been charged to a high content of cholesterol in the blood. The latest statistics, by Gorham and Myers[1] of the New York Post-Graduate Medical School and Hospital, indicate that the findings in cholelithiasis are quite inconstant. They conclude that since hypercholesterolemia may be found in many conditions and is not uniformly constant in cholelithiasis, it would seem that the blood cholesterol possesses only a limited diag-

1. Gorham, F. D., and Myers, V. C.: Remarks on the Cholesterol Content of Human Blood, Arch. Int. Med., October, 1917, p. 599.